MICROSCOPICAL FINDINGS IN CELL CULTURE AFTER FILTERING SURGERY WITH ANTIMETABOLITES

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Purpose : The use of antimitotic agents in filtering surgery has increased the rate of success in those cases considered as having a poor preoperative prognosis. Mitomycin-C is an antibiotic-antimetabolite agent that inhibits DNA replication.
The aim of this study is to evaluate cellular alterations induced by the antimitotic in previously treated scleral areas.

Methods: The left eye of twelve healthy pigmented rabbits went under filtering surgery, and were subsequently separated into two different treatment groups. During the surgical procedure the first group (6 eyes) received MMC 0.4 mg/ml and the second group (6 eyes) BSS.
Sclerectomy was performed one hour after surgery and the biopsies were placed in tissue culture media. Two plates of each group were fixed in 97° alcohol on days 6, 9 and 12, routinely stained with hematoxylin and eosin and studied through optic microscopy.

Results: The samples of tissue treated with MMC showed a considerable cellular atypia. Fibroblast were bigger, irregularly arranged, and their nuclei were frequently convoluted and indented with several nucleoli. The cytoplasm also showed multiple vacuoles.

Conclusions: The cytotoxic effect of MMC can be clearly observed in scleral areas after filtering surgery. Microscopic studies in cellular culture might be useful in order to improve our knowledge about the intrinsic effect of this antimetabolite.

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Histological effects of different energy levels of diode laser

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Introduction: Transescleral cyclophotocoagulation reduces IOP by causing a burning in the ciliary body. This effect could be dangerous if tissue destruction were excessive. On the other hand, the effect could be useless if the burning were too mild. The aim of this study is to evaluate histologically two different energy levels in four different postoperative stages.

Methods: The right eye of forty-eight healthy pigmented rabbits received fifteen diode laser applications at a limbal distance of 0.5 mm and in 270°. They were randomly separated into two groups which received 0.9 and 2,7 mJ respectively. Five animals of each group were killed immediately after surgery and then 7, 25 and 80 days after laser application.

Results: Immediately after surgery, in both groups we found a coagulative scleral necrosis that respected conjunctival epithelium and ciliary body. On day seven and in those cases treated with 2.7 mJ, the epithelium of the ciliary body was fragmented and showed signs of vacuolisation in its cytoplasm. Inflammatory signs included a graduated presence of lymphocytes and macrophagic cells that increased in the later stages of the study.

Conclusions: The fact that tissue damage and inflammatory presence increased as the level of energy used was bigger reveals the need of further studies about laser diode cyclophotocoagulation in order to establish more accurate techniques and parameters of application in clinical practice.

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SAFETY AND EFFICACY OF COMBINED PHAKOEMULSIFICATION, POSTERIOR CHAMBER LENS IMPLANT AND POSTERIOR LIP SCLERECTOMY. BUTLER GAD, NARAYANAN P, AND MERRIAM JC. EDWARD S. HARKNESS EYE INSTITUTE, COLUMBIA-PRESBYTERIAN MEDICAL CENTER, NEW YORK, NEW YORK (USA).

PURPOSE: A previous study has shown that extracapsular cataract extraction (ECCE) can be performed safely with a full-thickness filtering procedure. We reviewed 13 cases of combined phakoemulsification, posterior chamber lens implantation and posterior lip sclerectomy and 100 control cases of phakoemulsification and posterior chamber implant to compare the safety and efficacy of the two procedures.
METHODS: Seven of 13 eyes undergoing the triple procedure had advanced visual field loss. Four patients who underwent the triple procedure had useful vision in only one eye. The anterior chamber was filled with viscoelastic at the end of the procedure to help prevent post-operative shallowing of the chamber. Astigmatism was measured with a keratometer, and induced astigmatism was calculated at intervals post-operatively.
RESULTS: The mean intraocular pressure (IOP) of eyes on which the triple procedure was done was 19 pre-operatively on maximally tolerated medical therapy, and 13 after one year. One patient used 1 drop daily of a beta-blocker post-operatively; all others required no medications post-operatively. Maximum visual acuity was attained by one month post-operatively in all patients. No patient lost visual acuity or visual field; and induced astigmatism was minimal at 6 and 12 months post-operatively in triple and control groups.
CONCLUSION: Posterior lip sclerectomy may be performed safely with small incision cataract surgery. Maximum visual acuity is attained more quickly and induced astigmatism is less than for ECCE with IOL and sclerectomy, with no significant difference in post-operative IOP control.

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Immediate complications of diode laser transescleral cyclophotocoagulation

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Purpose: Transescleral cyclophotocoagulation has been proposed as an effective method to reduce IOP, nevertheless some studies reveal important reverse side effects.
This experimental study analyses immediate clinical and histological effects after laser application in an animal model.

Methods: Fifteen applications of diode laser transescleral cyclophotocoagulation have been performed in the right eye of twenty healthy pigmented rabbits. The treated area included 270° with the following parameters: 2.7 mJ and a limbal distance of 0.5 mm. Animals were killed 24 hours after laser application.

Results: It is worth noting the presence of important but IOP peaks immediately after surgical procedure that reached 30 mm Hg above previous IOP levels ($p<0.05$), and whose time span was shorter than 15 minutes. The appearance of complications included two scleral perforations and five cases of hiphema. Histological findings revealed coagulative necroses of the ciliary body.

Conclusions: The hopeful results of diode laser transescleral cyclophotocoagulation should not blind us about the possible complications which include dangerous IOP peaks and inflammatory reactions.

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